



## Introduction

The main purpose of Spacer Cables is minimizing and even eliminating power shortages due to eventual contact or falling tree branches over the distribution lines.

Spacer Cables are constituted by XLPE-Covered Aluminum Cables in distribution primary circuit and Multiplex Aluminum Cables (insulated) in secondary circuit.

This type of line is technically and economically feasible for dense tree sites, narrow streets and lines with two or more circuits per structure.

Besides these recommendations, Spacer Cables are an alternative for insulated networks that have high deployment and maintenance costs; it contributes significantly with environment preservation and increases power system reliability reducing DEC and FEC ratios dramatically (duration and frequency of accidental shortages, respectively).

We must emphasize these ratios are strictly tracked by ANEEL (Brazilian Agency of Electrical Energy) with heavy fines to Power Distribution Companies.

## Applications

- Dense tree sites
- Extensions with high failure rates
- Narrow streets
- Networks with two or more circuits per structure
- Private condos
- Alternative to insulated networks (high handling costs)

## Advantages

- Reliability, Quality and Safety
- Troubleshooting
- Better customer relationship
- Operational cost reduction:
- Less network interventions
- 15 times lower failure rate
- Tree pruning minimization
- Higher revenues
- Pleasant look



## Safety

- Leakage current reduction (accidental contact)
- Accident reduction (own or third party)

## Reliability and quality

- System failure reduction
- DEC/FEC reduction
- Low voltage drop (due to inter-phase distance)
- Electromagnetic field reduction (RIV – Radio interference)

### Average DEC ratio for existing lines and new-technology lines

Shortage nature		Value (hr/consumer-year)		
		RDA Conventional	RDA Insulated	RDA Covered
Scheduled	Installation	1,5	1,5	1,5
	Maintenance	2,25	0,5	0,75
	Third Party	0,4	0,2	0,25
Accidental	Own	2	0,35	0,7
	Environment	4,25	0,3	0,45
	Others	1,1	0,4	0,55
	Total	11,5	3,25	4,2

### Average FEC ratio for existing lines and new-technology lines

Shortage nature		Value (hr/consumer-year)		
		RDA Conventional	RDA Insulated	RDA Covered
Scheduled		2,4	1,5	1,7
Accidental		6,6	1,5	2,3
Total		9	3	4

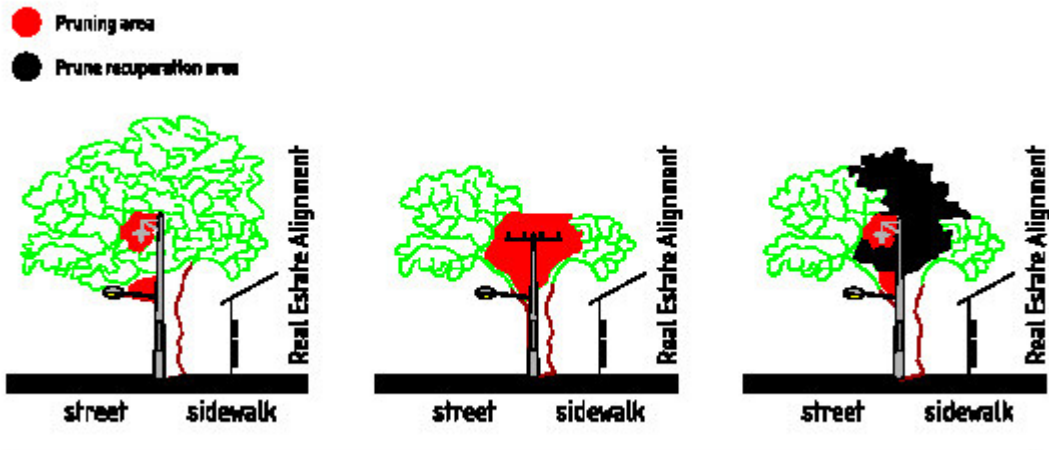
## Installation of several circuits

Up to 6 (six) Distribution Primary Circuits are admitted without rendering difficult operation and maintenance, including Live Line.



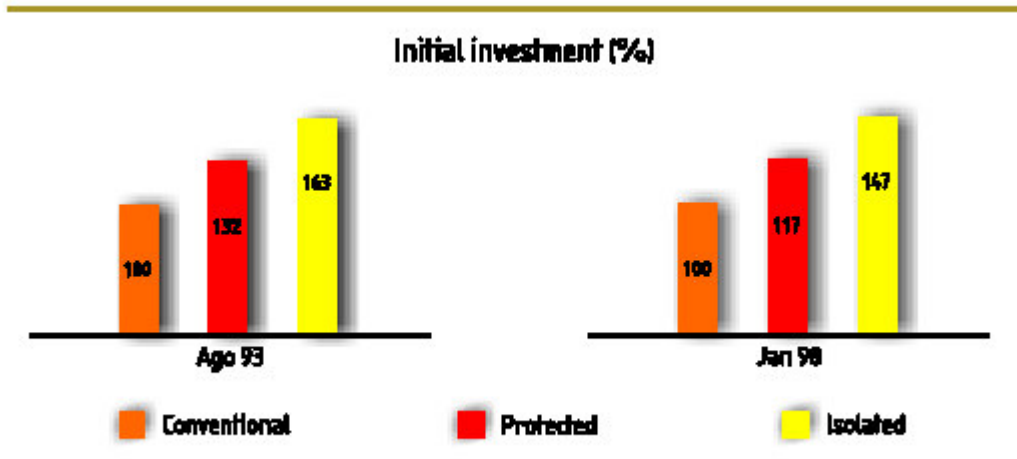
## Tree preservation

- Pruning area reduction
- Greater interval between tree prunings



## Economical analysis

- Initial investment (approximately 17% higher)
- Reduced failure rate
- Less preventive and corrective maintenance



Source: Cemig